

Patent Claims

1. A method for determining parameters of a technical system, by means of which output signals can be determined from a set of superimposed, statistically
5 mutually independent input signals, in which the parameters, which are elements in an unmixing matrix, by which the set of superimposed input signals are multiplied, and by which means the output signals are formed, are determined by optimization of a statistical
10 independence of the output signals, using the following steps:
- repetition of a time-delayed decorrelation calculation (6) in order to determine the intrinsic values in the unmixing matrix,
 - 15 - determination of the intrinsic values in the unmixing matrix for which cross-correlations assume a minimum value, and
 - carrying out cumulant minimization (5), with the intrinsic values determined in the previous step being
20 used as start values for the cumulant minimization.
2. The method as claimed in claim 1, in which the parameters are determined using an iterative method.
3. The method as claimed in claim 1 or 2, in which the cumulant minimization is carried out by training a
25 neural network (5).
4. The method as claimed in one of claims 1 to 3, in which, during the optimization of the parameters of the unmixing matrix, at least one diagonal parameter in the unmixing matrix is set to a predetermined value.
- 30 5. The method as claimed in one of claims 1 to 4, in which the unmixing matrix is limited to a finite impulse response.
6. The method as claimed in one of claims 1 to 5, in which the unmixing matrix is stabilized by
35 projection on to a unit circle during the cumulant minimization process (5).

7. The method as claimed in one of claims 1 to 6, used for separation of superimposed, statistically mutually independent input signals.

8. The method as claimed in one of claims 1 to 6, used for separation of superimposed, statistically mutually independent, acoustic input signals.

9. An arrangement for determining parameters of a technical system, by means of which output signals can be determined from a set of superimposed, statistically mutually independent input signals, having a processor which is set in such a manner that the parameters, which are elements in an unmixing matrix, by which the set of superimposed input signals are multiplied, and by which means the output signals are formed, are determined by optimization of a statistical independence of the output signals, using the following steps:

- repetition of a time-delayed decorrelation calculation (6) in order to determine the intrinsic values in the unmixing matrix,

- determination of the intrinsic values in the unmixing matrix for which cross-correlations assume a minimum value, and

- carrying out cumulant minimization (5), with the intrinsic values determined in the previous step being used as start values for the cumulant minimization.

10. The arrangement as claimed in claim 9, in which the processor is set up in such a manner that the parameters are determined using an iterative method.

11. The arrangement as claimed in claim 9 or 10, in which the processor is set up in such a manner that the cumulant minimization is carried out by training a neural network (5).

12. The arrangement as claimed in one of claims 9 to 11, in which the processor is set up in such a manner that, during the optimization of the parameters in the

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unmixing matrix, at least one diagonal parameter in the unmixing matrix is set to a predetermined value.

13. The arrangement as claimed in one of claims 9 to 12,

5 in which the processor is set up in such a manner that the unmixing matrix is limited to a finite impulse response.

14. The arrangement as claimed in one of claims 9 to 13, in which the processor is set up in such a
10 manner that the unmixing matrix is stabilized by projection on to a unit circle during the cumulant minimization process (5).

15. The arrangement as claimed in one of claims 9 to 14, used for separation of superimposed,
15 statistically mutually independent input signals.

16. The arrangement as claimed in one of claims 9 to 14, used for separation of superimposed, statistically mutually independent, acoustic input signals.